

WHAT IS CLAIMED IS:

1. A fabricating method of a substrate for a liquid crystal display device, comprising:

coating a cholesteric liquid crystal material on a substrate to form a cholesteric liquid crystal layer, the substrate having a plurality of sub-pixel regions;

disposing a mask having a plurality of open portions over the cholesteric liquid crystal layer;

irradiating the cholesteric liquid crystal layer through the open portions of the mask;

and

curing the cholesteric liquid crystal layer,

wherein each open portion is smaller than each sub-pixel region.
2. The method according to claim 1, further comprising forming a light absorption layer between the substrate and the cholesteric liquid crystal layer.
3. The method according to claim 1, wherein the plurality of open portions and the plurality of sub-pixel regions have a substantially rectangular shape, and each open portion has a narrower width than each sub-pixel region.
4. The method according to claim 1, wherein the plurality of sub-pixel regions include red sub-pixel regions, green sub-pixel regions and blue sub-pixel regions.

5. The method according to claim 4, wherein the plurality of open portions correspond to a first color sub-pixel region of the red sub-pixel regions, green sub-pixel regions and blue sub-pixel regions.

6. The method according to claim 5, further comprising:
disposing the mask over the cholesteric liquid crystal layer such that the plurality of open portions correspond to a second color sub-pixel region of red sub-pixel regions, green sub-pixel regions and blue sub-pixel regions; and
irradiating the cholesteric liquid crystal layer through the mask.

7. The method according to claim 6, further comprising:
disposing the mask over the cholesteric liquid crystal layer such that the plurality of open portions correspond to a third color sub-pixel region of red sub-pixel regions, green sub-pixel regions and blue sub-pixel regions; and
irradiating the cholesteric liquid crystal layer through the mask.

8. The method according to claim 7, wherein a first irradiation intensity for the red sub-pixel regions is higher than second and third irradiation intensities for the green and blue sub-pixel regions.

9. The method according to claim 8, wherein the second irradiation intensity for the green sub-pixel regions is higher than the third irradiation intensity for the blue sub-pixel regions.

10. The method according to claim 4, wherein the plurality of open portions includes first to third open portions having first to third transmittances, respectively, and the first transmittance is higher than the second transmittance and the second transmittance is higher than the third transmittance.

11. The method according to claim 10, wherein the first, second and third open portions correspond to red, green and blue sub-pixel regions, respectively.

12. A fabricating method of a substrate for a liquid crystal display device, comprising:

coating a first cholesteric liquid crystal material on a substrate to form a first cholesteric liquid crystal layer, the substrate having a plurality of sub-pixel regions;

disposing a first mask having a plurality of first open portions over the first cholesteric liquid crystal layer;

irradiating the first cholesteric liquid crystal layer through the open portions of the first mask;

curing the first cholesteric liquid crystal layer to form a first cholesteric liquid crystal color filter layer;

coating a second cholesteric liquid crystal material on the first cholesteric liquid crystal color filter layer to form a second cholesteric liquid crystal layer;

disposing a second mask having a plurality of second open portions over the second cholesteric liquid crystal layer;

irradiating the second cholesteric liquid crystal layer through the open portions of the second mask; and

curing the second cholesteric liquid crystal layer to form a second cholesteric liquid crystal color filter layer,

wherein each of the first and second open portions is smaller than each sub-pixel region.

13. The method according to claim 12, wherein the first mask and the second mask are the same mask.

14. method according to claim 12, wherein the plurality of sub-pixel regions include red sub-pixel regions, green sub-pixel regions and blue sub-pixel regions.

15. The method according to claim 14, wherein the first and second cholesteric liquid crystal color filter layers in the red sub-pixel regions reflect green and blue colored lights, respectively, wherein the first and second cholesteric liquid crystal color filter layers in the green sub-pixel regions reflect blue and red colored lights, respectively, wherein the first and second cholesteric liquid crystal color filter layers in the blue sub-pixel regions reflect red and green colored lights, respectively.

16. A fabricating method of a liquid crystal display device, comprising:
forming a light absorption layer on a first substrate having a plurality of sub-pixel regions;
coating a cholesteric liquid crystal material on the light absorption layer to form a cholesteric liquid crystal layer;

disposing a mask having a plurality of open portions over the cholesteric liquid crystal layer;

irradiating the cholesteric liquid crystal layer through the open portions of the mask;

curing the cholesteric liquid crystal layer to form a cholesteric liquid crystal color filter layer;

forming a common electrode on the cholesteric liquid crystal color filter layer;

forming a gate line on a second substrate;

forming a data line crossing the gate line;

forming a switching device connected to the gate line and data line;

forming a passivation layer on the switching device;

forming a pixel electrode on the passivation layer;

attaching the first and second substrates such that the common electrode faces the pixel electrode; and

forming a liquid crystal layer between the common electrode and the pixel electrode, wherein each open portion is smaller than each sub-pixel region.

17. The method of claim 16, further comprising forming a black matrix on the data line.

18. A fabricating method of a liquid crystal display device, comprising:
coating a first cholesteric liquid crystal material on a substrate to form a first cholesteric liquid crystal layer, the substrate having a plurality of sub-pixel regions;
disposing a first mask having a plurality of first open portions over the first cholesteric liquid crystal layer;

irradiating the first cholesteric liquid crystal layer through the open portions the first mask;

curing the first cholesteric liquid crystal layer to form a first cholesteric liquid crystal color filter layer;

coating a second cholesteric liquid crystal material on the first cholesteric liquid crystal color filter layer to form a second cholesteric liquid crystal layer;

disposing a second mask having a plurality of second open portions over the second cholesteric liquid crystal layer;

irradiating the second cholesteric liquid crystal layer through the open portions of the second mask;

curing the second cholesteric liquid crystal layer to form a second cholesteric liquid crystal color filter layer;

forming a common electrode on the second cholesteric liquid crystal color filter layer;

forming a gate line on a second substrate;

forming a data line crossing the gate line;

forming a switching device connected to the gate line and data line;

forming a passivation layer on the switching device;

forming a pixel electrode on the passivation layer;

attaching the first and second substrates such that the common electrode faces the pixel electrode; and

forming a liquid crystal layer between the common electrode and the pixel electrode, wherein each of the first and second open portions is smaller than each sub-pixel region.

19. The method of claim 18, wherein the first mask and the second mask are the same mask.

20. The method of claim 18, further comprising forming a black matrix on the data line.